Remarks

This paper is in response to the Office Action of September 28, 2005 and the Examiner is thanked for the careful review of this Application. The due date for response extends to December 28, 2005.

Claims 1, 2, 5-14, 21, and 22 have been amended for clarification purposes. Claims 15-19 and 23 have been canceled. Applicants respectfully submit that the amendments do not introduce new matter. Claims 1-14, 21, and 22 are pending in the application.

Rejections under 35 U.S.C. § 103

Claim 23 was rejected under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 23 has been cancelled by Applicants.

Rejections under 35 U.S.C. § 103

Claims 1-19 and 21-23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hiatt et al. (U.S. Patent No. 5,963,315)("Hiatt") in view of Yin et al. (U.S. Patent No. 5,865,901)("Yin") and Boszormenyi et al. (U.S. Patent No. 6,394,105)("Boszormenyi"). These rejections are respectfully traversed. Claims 15-19 and 23 have been canceled.

Hiatt discloses a method and apparatus for detecting particle contamination on the backside of a wafer. A robotic arm holding a wafer includes a laser and a particle detector. The laser and particle detector scan the entire backside of the wafer to detect particle contamination.

The laser and particle detector can scan a portion or the entire backside surface of the wafer. If particle contamination is found, sonic-activated cleaning is applied to the surface of the wafer.

Boszormenyi discloses a method and apparatus for cleaning the surface of a substrate. A laser is provided for cleaning and inspecting the surface of the substrate at the same time. Boszormenyi teaches that the entire surface of every workpiece needs to be cleaned. (col 2, lines 19-22).

Yin teaches a method and apparatus for cleaning a wafer surface. A wafer is placed in a holder device. The surface of the entire wafer is scanned for particle contamination and the particle contamination is mapped with a map device. From the map data, a dispenser is moved along the surface of the wafer to dispense a cleaning agent. As will be shown, the cited prior art references in combination do not disclose or suggest each and every feature of the independent claims.

Independent claim 1 defines a method for backside particle removal. The method identifies contact sites on the backside of a wafer. The contact sites are portions of the backside of the wafer that are configured to physically contact a surface of a chuck. The chuck has a surface with a predefined shape and contact is made when the backside of the wafer is placed in physical contact with the predefined shape of the surface of the chuck. The method of claim 1 proceeds with cleaning the contact sites on the backside of the wafer. The cleaning is configured to omit the cleaning of the portions of the backside of the wafer not having physical contact with the predefined shape of the surface of the chuck during the semiconductor fabrication process.

Hiatt, Boszormenyi, and Yin combined do not disclose a method identifying contact points on the backside of a wafer. Hiatt, Boszormenyi, and Yi disclose methods to scan the surface of a wafer. Hiatt and Boszormenyi use a laser while Yin uses a mapping device. However, the disclosed scanning operations are designed for particle contamination detection on the entire surface of a wafer not to identify contact sites on the backside of a wafer. Applicant's claimed invention identifies the contact sites as portions of the backside of the wafer configured to physically contact a surface of a chuck which has a predefined shape.

Likewise, the combined teachings of the prior art do not teach cleaning the contact sites on the backside of the wafer where the cleaning is configured to omit cleaning of portions of the backside of the wafer not having physical contact with the predefined shape of the surface of a chuck during a semiconductor fabrication process. Hiatt and Boszormenyi disclose methods of cleaning wafers which do not restrict cleaning to predefined shapes on the backside of a wafer while Yin discloses cleaning areas on a wafer revealed by a mapping device to have particle contamination. Combined, the teachings are not the same as Applicant's claimed invention because Yin relies on a mapping device to define the areas to be cleaned on a wafer. Therefore, the cleaning areas mapped by Yin are not predefined and may vary in size and shape depending on the severity of particle contamination within a semiconductor fabrication process chamber. Applicant's cleaning operation focuses cleaning on a predefined shape which does not vary with the severity of particle contamination within a semiconductor fabrication process chamber.

Independent claims 8, 21, and 22 have likewise been amended and for the same reasons discussed with respect to claim 1 are submitted to be allowable. Consequently, Applicants respectfully submit that the Hiatt, Yin, and Boszormenyi references in combination, do not teach or suggest all of the features of the claimed inventions. Applicants, therefore, respectfully

request that the section 103(a) rejections with respect to independent claims 1, 8, 21, and 22 be withdrawn. In addition, the dependent claims are submitted to be allowable for at least the reasons discussed above for the independent claims.

In view of the foregoing, Applicants respectfully submit that the pending claims are in condition for allowance and therefore respectfully request a notice of allowance. Accordingly, a notice of allowance is respectfully requested. In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at **(408) 774-6911**. If any additional fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. LAM2P317). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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